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论文

改进的自乳化溶剂挥发法制备的核/壳型Me.PEG-PLA纳米粒的表征

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摘要：

目的表征甲氧基封端的聚乙二醇/聚乳酸共聚物(Me.PEG-PLA)纳米粒。方法采用本体聚合合成了亲水改性的Me.PEG-PLA，用改进的自乳化-溶剂挥发法制备了该共聚物纳米粒。结果与结论^{1}HNMR和FT-IR表征了共聚物结构为嵌段共聚物。原子力显微镜（AFM）对纳米粒的形态研究表明，未经PEG改性的PLA纳米粒呈规整的球形，而PEG改性的PLA纳米粒为核/壳结构，外壳为亲水性的PEG链段，内核为疏水的PLA。激光粒度仪测定共聚物纳米粒的zeta电势为零，进一步证明其核/壳结构。共聚物纳米粒的粒径在70～160 nm，并呈正态分布。

关键词： 聚乳酸 聚乙二醇 纳米粒 自乳化-溶剂挥发法

Characterization of Me.PEG-PLA copolymer nanoparticles prepared by modified spontaneous emulsion-solvent evaporation

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Abstract:

AimCharacterization of poly(*D*,*L*-lactic acid)/monomethylether terminated/polyethylene glycol （Me.PEG-PLA） block copolymers nanoparticles. MethodsMe.PEG-PLA block copolymers were prepared by bulk polymerization. A series of nanoparticles were made from Me.PEG-PLA block copolymer by modified spontaneous emulsion-solvent evaporation technique. Results and conclusion The structure of copolymer was performed by means of ^{1}HNMR and FT-IR. The morphological examination of nanoparticles was performed by means of atomic force microscope (AFM). Results indicated that nanoparticles exhibited a smooth spherulite and core-shell structure. The hydrophilic shell is consisted of PEG segments and hydrophobic core is consisted of PLA segments. Zeta potential of nanoparticles was zero and further indicated core-shell structure. The particle size and size distribution of nanoparticles were measured by laser light scattering technique. The effective particle size range was from 70 to 160 nm and showed a normal distribution.

Keywords: polyethylene glycol nanoparticle self-emulsion solvent evaporation poly(*D*,*L*-lactic acid)

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